

## Claims

What is claimed is:

1. A method for managing contract data, comprising:
  - receiving a contract dataset by a decentralized execution system (DES) from a procurement contract management system (PCMS); and
  - passing the contract dataset through a software filter that determines whether to store the contract dataset or a first portion thereof in a relational database of the DES, said relational database including contract datasets, vendor datasets, and purchase item datasets.
2. The method of claim 1, wherein the software filter further determines whether to store the contract dataset or a second portion thereof in a special database of the DES.

1 3. A method for managing contract data, comprising:  
2 receiving a contract dataset by a first SAP contract management system from a second  
3 SAP contract management system; and  
4 passing the contract dataset through a software filter that determines whether to store the  
5 contract dataset or a first portion thereof in a SAP database of the first SAP contract management  
6 system.

1 4. The method of claim 1, wherein the software filter further determines whether to store the  
2 contract dataset or a second portion thereof in a non-SAP database of the first SAP contract  
3 management system.

093507-03200  
FO2230 4/20/2009

1 5. A method for managing contract data, comprising:

2 receiving a contract datagroup  $D_G$  by a decentralized execution system (DES) from a

3 procurement contract management system (PCMS), said contract datagroup  $D_G$  selected from the

4 group consisting of a contract dataset and a contract deltadataset, said contract datagroup  $D_G$

5 identifying  $N$  purchase items purchasable from a vendor  $V$  keyed to the contract datagroup  $D_G$ ,

6 said  $N$  at least 1, said contract datagroup  $D_G$  identifying the vendor  $V$  if the contract datagroup

7  $D_G$  is the contract dataset, said DES comprising a relational database that includes contract

8 datasets, vendor datasets having vendors, and purchase item datasets having purchase items;

9 determining which, if any, of the  $N$  purchase items identified in the contract datagroup

10  $D_G$  match a purchase item in the purchase item datasets and determining a total number  $K$  of such

11 purchase items in  $D_G$  that do not so match a purchase item in the purchase item datasets, said  $K$

12 satisfying  $0 \leq K \leq N$ ; and if  $K < N$  then

13 if the contract datagroup  $D_G$  is the contract dataset then determining whether the vendor  $V$

14 matches a vendor in the vendor datasets and if the vendor  $V$  so matches a vendor in the vendor

15 datasets then adding a subset of  $D_G$  to the relational database, said subset of  $D_G$  excluding the  $K$

16 purchase items from  $D_G$ , else

17 if the contract datagroup  $D_G$  is the contract deltadataset and  $D_G$  is keyed to a first contract

18 dataset in the relational database then adding to the first contract dataset in the relational database

19 a remaining  $N-K$  purchase items of  $D_G$ .

1 6. The method of claim 5, wherein the DES further comprises a special database that includes  
2 contract datasets, wherein the contract datagroup  $D_G$  is the contract deltadataset, and wherein if  $K$   
3  $> 0$  then said method further comprising:

4 if  $D_G$  is keyed to a first contract dataset in the special database, then adding to the first  
5 contract dataset in the special database the  $K$  purchase items of  $D_G$ ; and

6 if  $D_G$  is not keyed to any contract dataset in the special database, then forming from  $D_G$  a  
7 contract dataset  $D_{CI}$  that includes the  $K$  purchase items and excludes the remaining  $N-K$  purchase  
8 items, and adding  $D_{CI}$  to the special database.

1 7. The method of claim 5, wherein if  $K < N$  and the contract datagroup  $D_G$  is the contract dataset  
2 and the vendor  $V$  does not match a vendor in the vendor datasets, then further comprising adding  
3 a vendor dataset  $D_V$  to the relational database when a contract based on the subset of  $D_G$  is  
4 required at the DES, said vendor dataset  $D_V$  keyed to the vendor  $V$ .

1 8. The method of claim 7, wherein adding  $D_V$  to the relational database comprises extracting  $D_V$   
2 from a vendor database prior to adding  $D_V$  to the relational database.

1 9. The method of claim 7, wherein adding  $D_V$  to the relational database comprises:

2 communicating a message to a DES buyer keyed to at least one purchase item of the  
3 remaining  $N-K$  purchase items, each of said at least one purchase item matching a purchase item  
4 in the purchase item datasets, said message relating to adding  $D_V$  to the relational database; and

5           having the DES buyer cause  $D_v$  to be added to the relational database when the contract  
6   based on the subset of  $D_G$  is required at the DES.

1   10. The method of claim 5, wherein the contract datagroup  $D_G$  is the contract dataset.

1   11. The method of claim 5, wherein the contract datagroup  $D_G$  is the contract deltadataset.

1   12. The method of claim 5, said PCMS being a SAP system, said DES being a SAP system, said  
2   relational database being a SAP database.

093507-08204  
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1 13. A method for managing contract data, comprising:

2 receiving a contract dataset  $D_C$  by a decentralized execution system (DES) from a  
3 procurement contract management system (PCMS), said contract dataset  $D_C$  identifying a vendor  
4  $V$  and  $N$  purchase items purchasable from the vendor  $V$ , said  $N$  at least 1, said DES comprising a  
5 relational database that includes contract datasets, vendor datasets having vendors, and purchase  
6 item datasets having purchase items, said DES further comprising a special database that  
7 includes contract datasets;

8 determining which, if any, of the  $N$  purchase items identified in the contract dataset  $D_C$   
9 match a purchase item in the purchase item datasets and determining a total number  $K$  of such  
10 purchase items in  $D_C$  that do not so match a purchase item in the purchase item datasets, said  $K$   
11 satisfying  $0 \leq K \leq N$ ; and

12 if  $K = N$  then adding  $D_C$  to the special database, else if  $K < N$  then determining whether  
13 the vendor  $V$  matches a vendor in the vendor datasets and if the vendor  $V$  so matches a vendor in  
14 the vendor datasets then adding a first subset of  $D_C$  to the relational database and if  $K > 0$  adding  
15 a second subset of  $D_C$  to the contract datasets of the special database, said first subset of  $D_C$   
16 excluding the  $K$  purchase items from  $D_C$ , said second subset of  $D_C$  excluding a remaining  $N-K$   
17 purchase items from  $D_C$ .

1 14. The method of claim 13, further comprising:

2 adding a new purchase item to the purchase item datasets;

3 determining whether the new purchase item is identified in a contract dataset  $D_{CS}$  of the

1 special database; and

2 if the new purchase item is so identified in  $D_{CS}$  and  $D_{CS}$  identifies  $J$  purchase items such  
3 that  $J$  is at least 1, then determining whether a vendor identified in  $D_{CS}$  matches a vendor in the  
4 vendor datasets and if the vendor identified in  $D_{CS}$  so matches a vendor in the vendor datasets  
5 then:

6 if a contract identifier of  $D_{CS}$  matches a contract identifier of a first contract  
7 dataset in the relational database then adding the new purchase item to the first contract  
8 dataset, else

9 if the contract identifier of  $D_{CS}$  does not matches a contract identifier of any  
10 contract dataset in the relational database then adding a subset of  $D_{CS}$  to the relational  
11 database, said subset of  $D_{CS}$  including the new purchase item; and

12 if  $J = 1$  then deleting  $D_{CS}$  from the special database else deleting the new purchase  
13 item from  $D_{CS}$ .

1 15. The method of claim 14, further comprising extracting the new purchase item from a  
2 purchase item database prior to adding the new purchase item to the purchase item datasets.

1 16. The method of claim 13, said PCMS being a SAP system, said DES being a SAP system, said  
2 relational database being a SAP database, said special database being a non-SAP database.

1 17. A method for updating an execution document relating to a contract, said method comprising:  
2 having an execution document at a decentralized execution system (DES) of a  
3 procurement contract management system (PCMS), said execution document being derived from  
4 a contract dataset in the DES, said execution document having an existing attribute value for a  
5 purchase item in the contract dataset;  
6 receiving notice at the DES from the PCMS of a new attribute value that is to replace the  
7 existing attribute value; and  
8 replacing the existing attribute value with the new attribute value in the execution  
9 document.

1 18. The method of claim 17, said existing attribute value for the purchase item being a first price  
2 of the purchase item, said new attribute value for the purchase item being a second price of the  
3 purchase item.

1 19. The method of claim 17, said execution document being a purchase order.

1 20. The method of claim 17, said execution document being a scheduling agreement whose new  
2 attribute value for the purchase item is effective upon receipt of the purchase item by a DES  
3 buyer keyed to the purchase item.

1 21. The method of claim 17, said PCMS and said DES each being a SAP system.



1 22. A method of contract archiving, comprising:

2 sending a list of I identifiers by a procurement contract management system (PCMS) to at  
3 least one decentralized execution system (DES), said I at least 1, each identifier of the I  
4 identifiers identifying a contract dataset in the PCMS earmarked by the PCMS for archiving;

5 receiving by the PCMS a return list of M of the I identifiers from each DES of the at least  
6 one DES in response to said sending, said M in a range of  $0 \leq M \leq I$ , said return list being DES-  
7 specific, each said contract dataset identified in the return list of each DES having been approved  
8 by said each DES for archiving; and

9 archiving by the PCMS each contract dataset identified in the list of I identifiers and  
10 appearing in an intersection list of the return lists, if the intersection list is not empty.

1 23. The method of claim 22, further comprising communicating by the PCMS to each DES of the  
2 at least one DES:

3 that the archiving was done by the PCMS for the contract datasets appearing in the  
4 intersect list, if the intersection list is not empty; or

5 that the archiving will not be done, if the intersection list is empty.

1 24. The method of claim 22, said PCMS and each of the at least one DES being a SAP system.

1 25. A method of contract archiving, comprising:

2 receiving by a first decentralized execution system (DES) of at least one DES from a  
3 procurement contract management system (PCMS) a list of I identifiers, said I at least 1, each  
4 identifier of the I identifiers identifying a contract dataset in the PCMS earmarked by the PCMS  
5 for archiving, said list of I identifiers sent by the PCMS to each DES of the at least one DES, said  
6 PCMS adapted to receive a return list of M of the I identifiers from each DES of the at least one  
7 DES in response to said sending, said M in a range of  $0 \leq M \leq I$ , said return list being DES-  
8 specific, each said contract dataset identified in the return list of each DES having been approved  
9 by said each DES for archiving, said PCMS adapted to archive each contract dataset identified in  
10 the suggest list and appearing in an intersection list of the return lists if the intersection list is not  
11 empty; and

12 sending by the first DES to the PCMS the return list of the first DES.

1 26. The method of claim 25, further comprising receiving by the first DES notification from the  
2 PCMS:

3 that the archiving was done by the PCMS for the contract datasets appearing in the  
4 intersect list, if the intersection list is not empty; or

5 that the archiving will not be done, if the intersection list is empty.

1 27. The method of claim 25, said PCMS and each of the at least one DES being a SAP system.

1 28. A system for managing contract data, comprising software at a decentralized execution  
2 system (DES), said software adapted to:  
3 receive a contract dataset by the DES from a procurement contract management system  
4 (PCMS); and  
5 pass the contract dataset through a software filter that is adapted to determine whether to  
6 store the contract dataset or a first portion thereof in a relational database of the DES, said  
7 relational database adapted to include contract datasets, vendor datasets, and purchase item  
8 datasets.

1 29. The system for managing contract data of claim 28, wherein the software filter is adapted to  
2 further determine whether to store the contract dataset or a second portion thereof in a special  
3 database of the DES.

1 30. A system for managing contract data, comprising software at a decentralized execution  
2 system (DES), said software adapted to:  
3 receive a contract dataset by a first SAP contract management system from a second SAP  
4 contract management system; and  
5 pass the contract dataset through a software filter that determines whether to store the  
6 contract dataset or a first portion thereof in a SAP database of the DES.

1 31. The system for managing contract data of claim 30, wherein the software filter is adapted to  
2 further determine whether to store the contract dataset or a second portion thereof in a non-SAP  
3 database of the first SAP contract management system.

1 32. A system for managing contract data, comprising software at a decentralized execution  
2 system (DES), said software adapted:

3 to have the DES receive a contract datagroup  $D_G$  from a procurement contract  
4 management system (PCMS), said contract datagroup  $D_G$  selected from the group consisting of a  
5 contract dataset and a contract deltadataset, said contract datagroup  $D_G$  identifying  $N$  purchase  
6 items purchasable from a vendor  $V$  keyed to the contract datagroup  $D_G$ , said  $N$  at least 1, said  
7 contract datagroup  $D_G$  identifying the vendor  $V$  if the contract datagroup  $D_G$  is the contract  
8 dataset, said DES comprising a relational database that includes contract datasets, vendor  
9 datasets having vendors, and purchase item datasets having purchase items;

10 to determine which, if any, of the  $N$  purchase items identified in the contract datagroup  
11  $D_G$  match a purchase item in the purchase item datasets and to determine a total number  $K$  of  
12 such purchase items in the  $D_G$  that do not so match a purchase item in the purchase item datasets,  
13 said  $K$  satisfying  $0 \leq K \leq N$ ; and if  $K < N$  then

14 if the contract datagroup  $D_G$  is the contract dataset then to determine whether the vendor  
15  $V$  matches a vendor in the vendor datasets and if the vendor  $V$  so matches a vendor in the vendor  
16 datasets then to add a subset of  $D_G$  to the relational database, said subset of  $D_G$  excluding the  $K$   
17 purchase items from  $D_G$ , else

18 if the contract datagroup  $D_G$  is the contract deltadataset and said contract deltadataset is  
19 keyed to a first dataset in the relational database then to add to the first dataset a remaining  $N-K$   
20 purchase items of the contract datagroup  $D_G$ .

1 33. The system for managing contract data of claim 32, wherein the DES further comprises a  
2 special database that includes contract datasets, wherein the contract datagroup  $D_G$  is the contract  
3 deltadataset, and wherein if  $K > 0$  then said software is further adapted:

4 if  $D_G$  is keyed to a first contract dataset in the special database, then to add to the first  
5 contract dataset in the special database the  $K$  purchase items of  $D_G$ ; and

6 if  $D_G$  is not keyed to any contract dataset in the special database, then to form from  $D_G$  a  
7 contract dataset  $D_{C1}$  that includes the  $K$  purchase items and excludes the remaining  $N-K$  purchase  
8 items, and to add  $D_{C1}$  to the special database.

1 34. The system for managing contract data of claim 32, wherein if  $K < N$  and the contract  
2 datagroup  $D_G$  is the contract dataset and the vendor  $V$  does not match a vendor in the vendor  
3 datasets, then said software is further adapted to have a vendor dataset  $D_V$  added to the relational  
4 database when a contract based on the subset of  $D_G$  is required at the DES, said vendor dataset  
5  $D_V$  keyed to the vendor  $V$ .

1 35. The system for managing contract data of claim 34, wherein said software is further adapted  
2 to have the vendor dataset  $D_V$  extracted from a vendor database prior to having  $D_V$  added to the  
3 relational database.

1 36. The system for managing contract data of claim 34, wherein to have the vendor dataset  $D_V$   
2 added to the relational database comprises:

3 to communicate a message to a DES buyer keyed to at least one purchase item of the  
4 remaining N-K purchase items, each of said at least one purchase item matching a purchase item  
5 in the purchase item datasets, said message relating to adding  $D_v$  to the relational database; and  
6 to have the DES buyer cause  $D_v$  to be added to the relational database when the contract  
7 based on the subset of  $D_G$  is required at the DES.

1 37. The system for managing contract data of claim 32, wherein the contract datagroup  $D_G$  is the  
2 contract dataset.

1 38. The system for managing contract data of claim 32, wherein the contract datagroup  $D_G$  is the  
2 contract deltadataset.

1 39. The system for managing contract data of claim 32, said PCMS being a SAP system, said  
2 DES being a SAP system, said relational database being a SAP database, said software being  
3 non-SAP software.

1 40. A system for managing contract data, comprising software at a decentralized execution  
2 system (DES), said software adapted:  
3 to have the DES receive a contract dataset  $D_C$  from a procurement contract management  
4 system (PCMS), said contract dataset  $D_C$  identifying a vendor  $V$  and  $M$  purchase items  
5 purchasable from the vendor  $V$ , said  $M$  at least 1, said DES comprising a relational database that  
6 includes contract datasets, vendor datasets having vendors, and purchase item datasets having  
7 purchase items, said DES further comprising a special database that includes contract datasets;  
8 to determine which, if any, of the  $N$  purchase items identified in the contract dataset  $D_C$   
9 match a purchase item in the purchase item datasets and to determine a total number  $K$  of such  
10 purchase items in the  $D_C$  that do not so match a purchase item in the purchase item datasets, said  
11  $K$  satisfying  $0 \leq K \leq N$ ; and  
12 if  $K = N$  then to add  $D_C$  to the special database, else if  $K < N$  then to determine whether  
13 the vendor  $V$  matches a vendor in the vendor datasets and if the vendor  $V$  so matches a vendor in  
14 the vendor datasets then to add a first subset of  $D_C$  to the relational database and if  $K > 0$  to add a  
15 second subset of  $D_C$  to the contract datasets of the special database, said first subset of  $D_C$   
16 excluding the  $K$  purchase items from  $D_C$ , said second subset of  $D_C$  excluding a remaining  $N-K$   
17 purchase items from  $D_C$ .

1 41. The system for managing contract data of claim 40, wherein said software is further adapted:  
2 to add a new purchase item to the purchase item datasets;  
3 to determine whether the new purchase item is identified in a contract dataset  $D_{Cs}$  of the



special database; and

if the new purchase item is so identified in  $D_{CS}$  and  $D_{CS}$  identifies  $J$  purchase items such that  $J$  is at least 1, then to determine whether a vendor identified in  $D_{CS}$  matches a vendor in the vendor datasets, and if the vendor identified in  $D_{CS}$  so matches a vendor in the vendor datasets then:

if a contract identifier of  $D_{CS}$  matches a contract identifier of a first contract dataset in the relational database then to add the new purchase item to the first contract dataset, else

if the contract identifier of  $D_{CS}$  does not matches a contract identifier of any contract dataset in the relational database then to add a subset of  $D_{CS}$  to the relational database, said subset of  $D_{CS}$  including the new purchase item; and

if  $J = 1$  then to delete  $D_{CS}$  from the special database else to delete the new purchase item from  $D_{CS}$ .

42. The system for managing contract data of claim 41, wherein said software is further adapted to extract the new purchase item from a purchase item database prior to adding the new purchase item to the purchase item datasets.

43. The system for managing contract data of claim 40, said PCMS being a SAP system, said DES being a SAP system, said relational database being a SAP database, said special database being a non-SAP database, said software being non-SAP software.

1 44. A system for updating an execution document relating to a contract, comprising a  
2 decentralized execution system (DES) of a procurement contract management system (PCMS),  
3 said DES having software adapted:

4 to have an execution document at the DES, said execution document being derived from  
5 a contract dataset in the DES, said execution document having an existing attribute value for a  
6 purchase item in the contract dataset;

7 to receive notice at the DES from the PCMS of a new attribute value that is to replace the  
8 existing attribute value; and

9 to replace the existing attribute value with the new attribute value in the execution  
10 document.

1 45. The system for updating an execution document of claim 44, said existing attribute value for  
2 the purchase item being a first price of the purchase item, said new attribute value for the  
3 purchase item being a second price of the purchase item.

1 46. The system for updating an execution document of claim 44, said execution document being  
2 a purchase order.

1 47. The system for updating an execution document of claim 44, said execution document being  
2 a scheduling agreement whose new attribute value for the purchase item is effective upon receipt  
3 of the purchase item by a DES buyer keyed to the purchase item.



1 49. A system for contract archiving, comprising a procurement contract management system  
2 (PCMS) having software adapted:

3 to send a list of I identifiers to at least one decentralized execution system (DES), said I at  
4 least 1, each identifier of the I identifiers identifying a contract dataset in the PCMS earmarked  
5 by the PCMS for archiving;

6 to receive a return list of M of the I identifiers from each DES of the at least one DES in  
7 response to having sent the list of I identifiers to each said DES, said M in a range of  $0 \leq M \leq I$ ,  
8 said return list being DES-specific, each said contract dataset identified in the return list of each  
9 DES having been approved by said each DES for archiving; and

10 to archive each contract dataset identified in the list of I identifiers and appearing in an  
11 intersection list of the return lists, if the intersection list is not empty.

1 50. The system for contract archiving of claim 49, said software further adapted to communicate  
2 to each DES of the at least one DES:

3 that the archiving was done by the PCMS for the contract datasets appearing in the  
4 intersect list, if the intersection list is not empty; or

5 that the archiving will not be done, if the intersection list is empty.

1 51. The system for contract archiving of claim 49, said PCMS and each of the at least one DES  
2 being a SAP system, said software being non-SAP software.

1 52. A system for contract archiving, comprising a first decentralized execution system (DES) of  
2 at least one DES, said first DES having software adapted:

3 to receive from a procurement contract management system (PCMS) a list of I identifiers,  
4 said I at least 1, each identifier of the I identifiers adapted to identify a contract dataset in the  
5 PCMS earmarked by the PCMS for archiving, said list of I identifiers adapted to be sent by the  
6 PCMS to each DES of the at least one DES, said PCMS adapted to receive a return list of M of  
7 the I identifiers from each DES of the at least one DES in response to having sent the list of I  
8 identifiers to each said DES, said M in a range of  $0 \leq M \leq I$ , said return list being DES-specific,  
9 each said contract dataset identified in the return list of each DES having been approved by each  
10 said DES for archiving, said PCMS adapted to archive each contract dataset identified in the list  
11 of I identifiers and appearing in an intersection list of the return lists if the intersection list is not  
12 empty; and

13 to send to the PCMS the return list of the first DES.

1 53. The system for contract archiving of claim 52, said software further adapted to receive  
2 notification from the PCMS:

3 that the archiving was done by the PCMS for the contract datasets appearing in the  
4 intersect list, if the intersection list is not empty; or

5 that the archiving will not be done, if the intersection list is empty.

- 1 54. The system for contract archiving of claim 52, said PCMS and each of the at least one DES  
2 being a SAP system, said software being non-SAP software.

093507-08204  
102230-405260

